

PATENT SPECIFICATION ⁽¹¹⁾

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(19)



(54) "IMPROVEMENTS IN OR RELATING TO A TIME-MONITORING DEVICE".

(71) We, VDO ADOLF SCHINDLING AG, formerly VDO ADOLF SCHINDLING GmbH, of 6 Frankfurt/Main 90, Postfach 901020, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be particularly described in and by the following statement:-

The present invention relates to an automatic coin-operated time monitoring device, in particular a parking meter, having a coin insertion slot arranged at the end of a coin insertion funnel, with a flap closing the slot at its internal side, the flap being moved pivotably to unmask the coin insertion slot in opposition to the action of a spring when a coin is inserted in the coin insertion slot.

As is known, satisfactory operation of automatic coin-operated time-monitoring devices requires as comprehensive protection as possible of the device, which is arranged in a housing, from dust, water and other foreign bodies and liquids. For this reason in many time-monitoring devices and more particularly in the case of parking meters which are set up in the open there is arranged behind the coin insertion slot, through which foreign bodies and liquids can enter the interior of the housing, a pivotable flap which, when a coin is inserted, is moved pivotably by the coin and unmasks the coin insertion slot, and closes the insertion slot again after the coin has been introduced. This flap has the disadvantage that it cannot hold back any foreign bodies which are deliberately inserted in order to put the time-monitoring device out of action, such as stones, office clips, nails, screws, pieces of wire, chewing gum and so on, or viscous and sometimes hardening compounds, adhesives and similar substances poured into the housing through the coin insertion slot. It may also happen that the foreign substances which are pushed or pressed in through the coin insertion slot may jam between the flap

and the coin insertion slot and hold the flap fast in a position unmasking the insertion slot.

In an automatic coin-operated time-monitoring device of the kind described initially, the invention provides two pivotably mounted stop levers which each have one portion which projects into the coin introduction path and another portion which is operatively associated with the flap in such a manner that in the position of rest of the stop levers the flap is secured against pivoting movement and is released when the stop levers are actuated by an introduced coin, the stop levers being situated opposite one another at the coin introduction path and each held in the position of rest by a spring.

As a result the coin insertion slot is unmasked only if the stop levers and flap are operated at the same time or directly one after the other. But this kind of operation is possible without difficulty only if a coin or a coin-like article is inserted, and not if foreign bodies such as nails, office clips and so on are introduced. In the latter cases, it is necessary with an additional tool or a thin long article to bring the stop levers into the releasing position and at the same time to press the foreign body against the flap to allow the foreign body to be inserted. But this kind of operation is very time-consuming and requires above-average dexterity, since owing to the position of the stop levers and the coin insertion slot in the rear portion of the coin insertion funnel, only a very small operating space is available.

More than two stop levers to be operated by the inserted coin can be provided, but two are preferred so as to provide an excellent protective effect which in practice is very difficult to break through. If more than two stop levers are used, the additional amount of protection achieved is only slight, whereas the expense and the difficulties at the time of

assembly increase.

In a time-monitoring device having a flap pivotable about an axis parallel to the coin introduction path, the two stop levers most advantageously are arranged in the coin introduction path plane in the narrow side regions of the coin insertion funnel. An arrangement of this kind has the advantage as compared with the likewise possible arrangement wherein the stop levers are arranged in a plane at right angles to the path of coin introduction in the regions of the wide sides of the coin insertion funnel, that it is possible to use stop levers of small overall size, and consequently a space-saving compact construction can be achieved. In a constructional form which is preferable for reasons of manufacturing and assembly technique, and which is based on the arrangement of two stop levers just described, the coin insertion funnel is subdivided in the coin introduction plane or parallel thereto into two portions, one of which is formed on the housing of the device and the other is secured on the housing, and between which the stop levers are arranged pivotably mounted in the two portions.

The construction of the operative association between the stop levers and the flap can be arranged in various ways. It has been found particularly advantageous from the production point of view, in the case of a flap adapted to move pivotably about an axis parallel to the coin introduction path and when using two stop levers arranged in the narrow side regions of the coin insertion funnel, if the flap has two tab-like projections the position and length of which are so selected that in the position of rest of the flap the stop levers in each case are situated in front of one projection end and in the pivoted position of the flap the stop levers in each case act against one longitudinal side of the projection.

An embodiment of the invention will now be explained in detail by way of example only with reference to the accompanying drawings in which, in a partly diagrammatic form:

Figure 1 is an elevation showing a coin insertion system with the upper part removed,

Figure 2 shows a section through the coin insertion system shown in Figure 1 with the upper part applied, along the line II-II and

Figure 3 shows a section through the coin insertion system according to Figure 1 with the upper part applied, along the line III-III.

In a side wall 1 of a housing of a parking meter there is situated a coin insertion funnel 2 at the rear end of which there is arranged a coin insertion slot 3. As more particularly Figure 3 shows, the coin insertion funnel 2 is sub-divided in a plane 5 parallel to the coin introduction path plane 4, into two parts 6

and 7 of which the part 6 is formed on the side wall 1 of the parking meter housing, whereas the part 7 is secured in a recess of the side wall 1 by means of screws not shown here, and rests on the part 6.

The coin insertion slot 3 is situated in a metal plate 8 which is bent to an L-shape and whose limb 9 adjacent the coin insertion slot 3 is curved and whose other limb 10 is secured to the housing base 11 by means of two screws 12. Two hooks 13 are formed on to the end of the limb 10. The flap 14 closing the coin insertion slot 3 also consists of a metal plate bent to an L-shaped form with a curved limb 15 and a limb 16 whose end engages in the hooks 13 and bears with two fingers 17 formed on to this end on the sides of the hooks 13. This connection permits pivoting of the flap 14 about an axis parallel to the coin introduction path plane 4 in opposition to the action of the spring 18 if a coin is pressed against the flap 18 when the latter is unlocked.

The locking of the flap 14 is effected by means of two pivotably mounted stop levers 20 and 21 each of which has a portion 20a and 21a respectively projecting into the coin introduction path 4 whereas another portion 20b, 21b respectively extending through an aperture 22, 23 respectively in the L-shaped limb 9 of the plate 8 is operatively connected with the flap 14. The stop levers 20 and 21 advantageously are made of plastics material and are provided at both sides with shaft stubs 24 which are coaxial with one another and fit into corresponding holes in the parts 6 and 7. As can be seen, the two stop levers 20 and 21 are arranged in the coin introduction path plane 4 in the narrow side regions of the coin insertion funnel 2. Each of the stop levers is held in its position of rest by a spring 25, 26 respectively situated in a recess 27, 28 in the side wall 1 and each carrying a plunger 29, 30 respectively.

The flap 14 has two tabs 31 and 32 which are formed on to the longitudinal sides of the limb 15 and in front of whose end faces 31a and 32a the stop levers 20 and 21 are situated when they are in their position of rest. The length of the tabs 31 and 32 is so selected that when the flap 14 is pivoted the longitudinal sides 31b and 32b respectively of the tabs 31 and 32 act as abutments for the stop levers 20 and 21.

As Figure 1 shows more particularly, when a coin 19 is inserted, first of all the two stop levers 20 and 21 are moved pivotably outwards, whereby the end faces 31a and 32a of the tabs 31 and 32 are released. Then by the pressure exerted by the operator on the coin 19, the flap 14 is lifted so that the lower edge 33 of an opening 34 situated in the flap limb 15 comes to be situated over the upper edge of the coin insertion slot 3 and the coin insertion slot 3 is unmasked. After a

substantial portion of the coin 19 is pushed through, the deflected stop levers 20 and 21 are moved by the springs 25 and 26 back into the initial positions of the said levers until they abut with the portions 20b and 21b respectively on the longitudinal side 31b, 32b of the tabs 31 and 32. When the coin 19 has been pushed completely through the slot 3, the flap 14 first of all and then each of the two stop levers 20 and 21 falls back into its position of rest and the flap 14 is again locked.

As can be seen, the locking of the flap 14 is discontinued only if both of the stop levers 20 and 21 are moved pivotably. The introduction of any other article than a coin or a coin-like element is consequently no longer possible unless tools specially made for this purpose are used. But even then the introduction of an article not suitable for the device presents considerable difficulty since operations have to be carried out in a very restricted space. The actual size of the coin insertion system is of course much smaller than shown in the drawings; the illustrated coin 19 in actual fact is about the size of a German 10-pfennig coin, and the other components are on the same scale.

The stop levers described above thus provide measures ensuring that the coin insertion slot is unmasked by the flap only if a coin or at any rate a coin-like article is inserted, and in all other cases the said slot remains closed. In addition the provision of these levers is simple and is to involve as little additional expense as possible.

WHAT WE CLAIM IS:-

1. A coin-operated time-monitoring device having a coin insertion slot arranged at the end of a coin insertion funnel, with a flap closing the slot at its internal side to prevent the insertion of non-coin like articles, the flap being moved pivotably to unmask the coin insertion slot in opposition to the action of a spring only when a coin is introduced into the coin insertion slot, two pivotably mounted stop levers being provided which each have one portion which

projects into the coin introduction path and another portion which is operatively associated with the flap, in such a manner that in the position of rest of the stop levers the flap is secured against pivoting movement and when the stop levers are operated by an introduced coin the flap is released, the stop levers being situated opposite one another at the coin introduction path and each held in the position of rest by a spring.

2. A device according to claim 1 having a flap which is pivotable about an axis parallel to the coin introduction path, the stop levers being arranged in the coin introduction path plane in the narrow side regions of the coin insertion funnel.

3. A device according to claim 2 wherein the flap has two tab-like projections the length and position of which are so selected that in the position of rest of the flap the stop levers are in each case situated in front of a projection end and in the pivoted position of the flap the stop levers each act against one longitudinal side of the projection.

4. A device according to claim 2 or claim 3 wherein the coin insertion funnel is sub-divided in the coin introduction path plane or parallel thereto into two parts one of which is formed on a housing of the device and the other is secured on the housing, and between which the stop levers are arranged pivotably mounted in the two parts.

5. A device substantially as herein described with reference to and as illustrated in the accompanying drawings.

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Fig. 1.

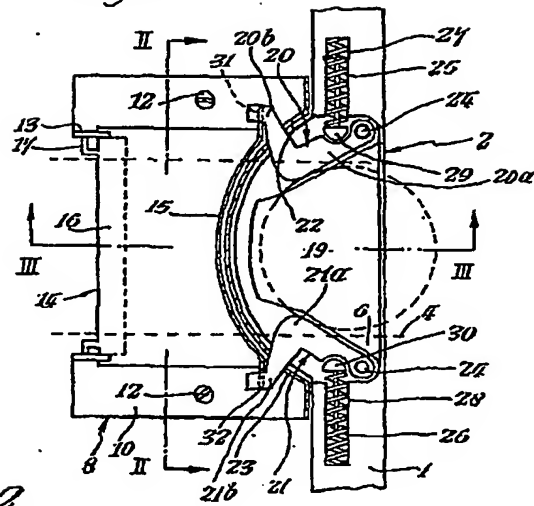


Fig. 2.

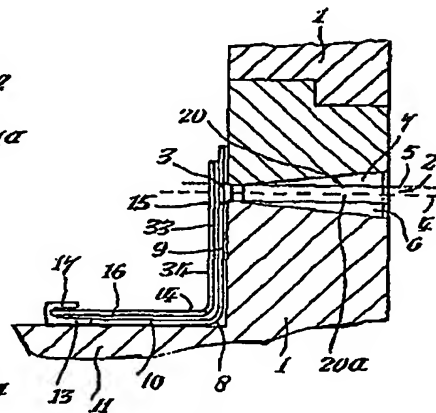
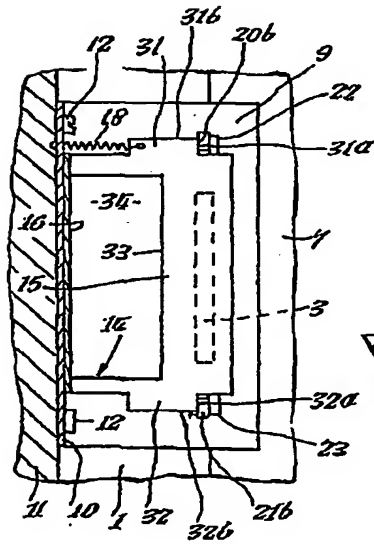


Fig. 3.